Z. Phys. Chem. **224** (2010) 1–2 / **DOI** 10.1524/zpch.2010.6088

Preface

This special issue of *Zeitschrift für Physikalische Chemie* is method-oriented and comprises 16 mini-review articles elucidating the progress achieved in the field of Physical Materials Chemistry and Biophysical Chemistry by means of *Quasielastic Neutron Scattering*. This method has meanwhile developed into a powerful analytical technique and enables to study translational and rotational motions, i.e. stochastic dynamics, of atoms and molecules and thus chemical and biological moieties in condensed matter. Scientific work in the field of quasielastic neutron scattering is nowadays not restricted to the scientists of the (rather few) neutron scattering facilities: on the one hand, all neutron centres – most of them officially operate as user facilities – offer beam time and use of their instruments to scientists from universities, other research laboratories, and industry; every interested scientist can have access to quasielastic neutron scattering for free (including sometimes even travel expenses). On the other hand, quasielastic neutron scattering is, as will be outlined in this special issue, a versatile and powerful tool for atomistic studies of the dynamics in condensed matter with applications in different branches of physics, chemistry, materials science, and biology. This versatility is due to the many aspects of quasielastic neutron scattering comprising coherent and incoherent scattering. Consequently, quasielastic neutron scattering is not "big science" like elementary particle physics, where hundreds of scientists at dedicated huge machines work for years on just one problem, e.g. the detection of a new elementary particle. In contrast the practise of neutron scattering including quasielastic neutron scattering is characterized by a large variety of small groups working on many different scientific problems. For the majority of these groups quasielastic neutron scattering is just one method among several other ones available at their respective home laboratory. The yearly neutron beam time at the neutron sources is between 4 and 20 days. Therefore progress in quasielastic neutron scattering usually occurs at a broad front and not in single famous experiments.

This progress has been discussed at the 9^{th} *International Conference on Quasielastic Neutron Scattering (QENS 2009)* which was hosted by the Paul Scherrer Institute in Villigen (Switzerland), in collaboration with the University of Saarland, from February 10 to 13, 2009. The meeting was attended by 100 registered participants from 14 different countries including Japan and USA. The scientific program consisted of 10 invited lectures of scientists with international standing, 33 contributed talks and 44 posters, and it covered the following topics:
– QENS Instrumentation
– Glass transition

– Dynamics in confinement including zeolites, clay and concrete
– Molecular and macromolecular systems
– Biophysics

From this variety of topics, with quasielastic neutron scattering as the common methodical bracket, the guest editors of the present special volume have invited 15 authors of contributions with relevance for Physical Materials Chemistry and Biophysical Chemistry to extend their contributions to mini-reviews, for the benefit of the non-specialized reader of *Zeitschrift für Physikalische Chemie*. The first article by the guest editors themselves is intended to serve as a tutorial to quasielastic neutron scattering ranging from theoretical basics up to very practical hints. The invited authors have - in view of the guest editors - succeeded to present well-readable "stories of quasielastic neutron scattering" in an attractive style with an instructive content, which the readers from the non-specialized scientific community hopefully enjoy and experience as intellectually stimulating.

Saarbrücken and Villigen, November 2009
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